

**PATENT APPLICATION**

**REMOVABLE CAR SEAT COVERS AND METHODS FOR USING**

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## REMOVABLE CAR SEAT COVERS AND METHODS FOR USING

## BACKGROUND OF THE INVENTION

[0001] Both common sense and the laws of many states dictate that a child, when riding in motor vehicles, should be restrained by an appropriate child restraint system. The U.S. Department of Transportation has promulgated regulations establishing performance criteria for such systems. *See, e.g.*, 49 C.F.R. § 571.213 (2003). To meet these criteria, many manufacturers have begun in recent years to manufacture child restraint systems having a “five point” belt configuration originally developed for military planes and racecars.

[0002] Five point belt systems are effective in restraint systems because they feature five anchor points, where the belts are attached to the frame of the restraint system (usually a child car seat, or in the case of infants, a bassinet-style carrier). Typically, the five anchor points are arranged in the following manner: left and right shoulder anchor points, left and right hip anchor points, and a crotch anchor point. The left shoulder and hip anchor points serve to anchor either end of a left shoulder belt to the underlying device, while the right shoulder and hip anchor points likewise anchor either end of a right shoulder belt. Each of the shoulder belts includes a connector, which can be mated to a buckle attached to the free end of a crotch strap, which is anchored to the underlying device via the crotch anchor.

[0003] Those skilled in the art will recognize that child restraint systems often include padding and/or a fabric cover over the frame of the system, in order to enhance the safety and comfort of the system. Often, the padding and cover will be integrated into a single, padded cover, and the cover generally will have at least five holes, corresponding to the anchor points, to allow the belts to be fed through the padding and/or cover and anchored to the frame.

[0004] Recognizing that children are not the cleanest of creatures, the manufacturers of child restraint systems often make the covers washable, to remedy the unavoidable occasional spill. Unfortunately, with the advent of five point belt systems, it has become difficult to remove the cover for washing. As noted above, the covers known in the art define five (or more) separate holes, to correspond to each anchor point. Because the shoulder belts each are anchored at two points, however, one of the anchors must be released in order to allow the

cover to be removed from the frame. This presents a problem, because common child restraint systems are manufactured in a way that requires.

#### BRIEF SUMMARY OF THE INVENTION

- 5 [0005] Embodiments of the invention provide novel car seats, car seat covers, and methods for their use. For example, one exemplary embodiment comprises a car seat cover for a car seat, which can comprise a frame, a padding disposed over the frame, a first shoulder strap and a second shoulder strap. Each shoulder strap may comprise a connector, an upper anchor point and a lower anchor point, such that each anchor point may be attached to the frame.
- 10 The car seat can further comprise at least one crotch strap, which can include an anchor point attached to the frame and a buckle, the buckle being configured to accept the connectors
- [0006] The car seat cover can comprise a fabric cover having an outer periphery, which can be adapted to be coupled to the car seat frame over the padding. The fabric cover may define a pair of shoulder strap openings and a crotch strap opening, which can be disposed so as to
- 15 allow the shoulder straps and the crotch strap, respectively, to be extended through the fabric cover. In some cases, the car seat cover can further comprise a border portion disposed about the outer periphery, and the border portion can be adapted to secure the cover about the car seat with the cover being disposed to allow the shoulder straps to extend through the shoulder strap openings, the crotch strap to extend through the crotch strap opening, and the connectors
- 20 to be inserted into the buckle, without detaching any of the anchor points from the frame. Thus, in accordance with some embodiments, the shoulder straps and the crotch strap can be used to secure a child in the car seat, with the car seat cover being disposed between the child and the car seat.
- [0007] In particular embodiments, the cover can be configured to protect a child car seat
- 25 and/or an infant carrier. In other embodiments, the cover may have a support pillow fixedly and/or removably attached to the fabric cover and/or disposed to support the head of a child seated in the car seat. In yet further embodiments, the car seat cover can comprise a flap disposed so as to cover a portion of at least one of the pair of shoulder strap openings. The flap, therefore, can defining a plurality of strap openings through which at least one of the
- 30 pair of shoulder straps can extend. At least a portion of the flap may be fixedly and/or removable attached to the fabric cover and/or the flap can be removed entirely from the cover.

[0008] The fabric cover can comprise an absorbent and/or stain-resistant material, and/or a material to which a water-resistant coating has been applied. In certain embodiments, the car seat cover can comprise a disposable material, which can be paper, etc. In accordance with certain embodiments, a canopy can be attached to the fabric cover and disposed to cover at least a portion of a child seated in the car seat. Merely by way of example, the canopy can include a canopy body having an outer periphery, at least one border portion disposed about at least a portion of the outer periphery of the canopy body, and at least one support member attached to the canopy body. The at least one support member providing structural support to the canopy body. The canopy, cover and/or car seat can further include at least one coupling mechanism for attaching objects to the bar. The coupling mechanism(s) may be included with a bar attachable to the canopy, cover and/or car seat.

[0009] Another set of embodiments provides car seats. One exemplary car seat (which can be an infant carrier, a child car seat, etc.) can comprise a frame, a padding disposed over the frame and a fabric cover. The car seat can further include a first shoulder strap and a second shoulder strap, each shoulder strap comprising a connector, an upper anchor point and a lower anchor point. Each anchor point can be attached to the frame. In some embodiments, the fabric cover can have an outer periphery that is adapted to be coupled to the frame over the padding and/or the fabric cover can define a pair of shoulder strap openings and a crotch strap opening; the shoulder strap openings and the crotch strap opening may be disposed so as to allow the shoulder straps and the crotch strap to be extended through the fabric cover.

[0010] Embodiments of the car seat may also comprise a border portion disposed about the outer periphery, and the border portion can be adapted to secure the cover about the car seat. Thus, the cover can be disposed to allow the shoulder straps to extend through the shoulder strap openings, the crotch strap to extend through the crotch strap opening, and the connectors to be inserted into the buckle, without detaching any of the anchor points from the frame. In this and other ways, the shoulder straps and the crotch strap can be used to secure a child in the car seat, with the car seat cover being disposed between the child and the car seat.

[0011] Another set of embodiments provide methods for protecting car seats and/or children. One exemplary method can protect a car seat, such as one described above, and can comprise providing a car seat cover. The car seat cover can include a fabric cover having an outer periphery that is adapted to be coupled to the car seat frame over the padding. The fabric cover also can define a pair of shoulder strap openings and a crotch strap opening

disposed so as to allow the shoulder straps and the crotch strap, respectively, to be extended through the fabric cover. The cover can further comprise a border portion disposed about the outer periphery, wherein the border portion is adapted to secure the cover about the car seat, allowing the shoulder straps to extend through the shoulder strap openings, the crotch strap to extend through the crotch strap opening, and the connectors to be inserted into the buckle, without detaching any of the anchor points from the frame. Thus, the shoulder straps and the crotch strap can be used to secure a child in the car seat, with the car seat cover being disposed between the child and the car seat.

[0012] The method can further include securing the car seat cover about car seat by placing the border portion around an outside portion of the frame, extending the shoulder straps through the shoulder strap openings, and extending the crotch strap through the crotch strap opening. In other embodiments, the method can also include placing a child in the car seat, such that the shoulder straps secure the child's shoulders and the crotch strap extends between the child's legs, using the buckle and the connectors, securing the shoulder straps to the crotch strap. The car seat cover may be removed from the car seat, washed, and re-secured about the car seat. Alternatively, the car seat cover may be removed and discarded.

[0013] In some embodiments, the car seat and/or car seat cover can include a canopy, and the method can further comprise extending the canopy to cover at least a portion of a child seated in the car seat. Further, a bar may be attached to the canopy. The bar can comprise one or more coupling mechanisms to allow an object to be coupled to the bar, and the method can include coupling an object to the bar.

[0014] The invention has been briefly described above. Additional features and advantages may be realized by reference to the appended figures and the detailed description below.

## BRIEF DESCRIPTION OF THE DRAWINGS

[0015] A further understanding of the nature and advantages of the present invention may be realized by reference to the figures, which are described in remaining portions of the specification. In the figures, like reference numerals are used throughout several to refer to similar components. In some instances, a sub-label consisting of a lower case letter is associated with a reference numeral to denote one of multiple similar components. When reference is made to a reference numeral without specification to an existing sub-label, it is intended to refer to all such multiple similar components.

[0016] Fig. 1 is a drawing of a removable car seat cover in accordance with various embodiments of the invention.

[0017] Fig. 2 is a front perspective drawing of a child car seat with a removable car seat cover in accordance with various embodiments of the invention.

5 [0018] Fig 3. is a rear perspective drawing of the car seat with a removable car seat cover as illustrated in Fig. 2.

[0019] Fig. 4 is an exploded view of the car seat and removable car seat cover of Fig. 2.

[0020] Fig. 5 is a detail view of a removable car seat cover disposed in accordance with various embodiments of the invention.

10 [0021] Figs. 6 and 7 are a detail views of a removable car seat cover with a flap in accordance with various embodiments of the invention.

[0022] Fig. 8 is a top perspective drawing of an infant carrier with a removable infant car seat cover in accordance with embodiments of the invention.

15 [0023] Fig. 9 is a side perspective drawing of the infant carrier and removable car seat cover illustrated in Fig. 8.

[0024] Fig. 10 illustrates a car seat cover comprising a support structure for supporting a child's head, in accordance with various embodiments of the invention.

[0025] Fig. 11 illustrates a car seat cover comprising a canopy, in accordance with various embodiments of the invention.

## 20 DETAILED DESCRIPTION OF THE INVENTION

[0026] Various detailed embodiments of the present invention are disclosed herein; however, it is to be understood that the disclosed embodiments are merely exemplary of the invention, which may be embodied in various forms. Therefore, specific structural and functional details disclosed herein are not to be interpreted as limiting, but merely as a basis  
25 for the claims and as a representative basis for teaching one skilled in the art to variously employ the present invention in virtually any appropriately detailed structure.

[0027] Those skilled in the art will appreciate that child restraint devices are offered in a variety of configurations. For very young children, parents often prefer to use a combination infant carrier/car seat, which can be used both to carry the child and can be secured within a

vehicle, often by the use of a base (secured by the vehicles seat belts) to which the infant carrier can be attached. Some such systems can also the infant carrier to be used with a stroller, usually via a similar base attached to a stroller body. Some exemplary infant carriers are described in detail in, for example, U.S. Patent Nos. 6,331,032 and 6,454,350, the  
5 complete disclosures of which are incorporated herein by reference for all purposes. Older children, by contrast, often ride in a more upright, bucket-type seat, facing either to the front or to the rear of the vehicle, depending on the age and size of the child. Some bucket-type seats are described in detail in U.S. Patent Nos. 6,508,510, 6,378,950 and 5,957,531, the complete disclosures of which are incorporated herein by reference for all purpose. The term  
10 “car seat” is used herein to refer collectively to both of these types of child restraint devices, unless the context specifically indicates otherwise.

[0028] Various embodiments of the invention provide removable car seat covers and methods for using them. Other embodiments of the invention provide car seats with removable car seat covers. One set of embodiments is exemplified by the car seat cover 100  
15 illustrated in Fig. 1. The car seat cover 100 can be used to cover and protect a car seat (including, for instance, a child’s car seat). The car seat cover 100 can be configured generally to be secured to a seating surface of a car seat. Thus, the car seat cover 100, in accordance with some embodiments, can be patterned to conform to the shape of a child car seat and/or infant carrier. The exemplary car seat cover 100 comprises a fabric cover 104,  
20 which can, in accordance with some embodiments, include an elasticized outer portion 108. Those skilled in the art will recognize that car seats often are subjected to a variety of spills and stains, resulting in part from their frequent proximity to children. In accordance with certain embodiments, therefore the fabric cover 104 can comprise an absorbent material, such as natural (*e.g.*, cotton, wool, etc.) or synthetic (*e.g.*, polyester, nylon, etc.) padding, such that  
25 any liquid spilled on the car seat will be absorbed by the car seat cover. Advantageously, the car seat cover 100 easily may be removed from the car seat, as described more fully below, and washed, to remedy any spills.

[0029] In accordance with other embodiments, the fabric cover 104 can comprise a stain- and/or liquid- resistant material, such as nylon, etc. One such material is commercially-  
30 available under the Gore-Tex™ brand. In addition, the fabric cover can be coated with any of several commercially-available waterproofing coatings, such as those marketed under the ScotchGuard™ brand. Generally, the exterior of the fabric cover 104 can also comprise a material that is comfortable, as it may come into contact with a person’s skin. Thus, in

accordance with some embodiments, the fabric cover 104 may be multilayered. Merely by way of example, the cover can have a comfortable and/or absorbent outer layer and a waterproof (e.g., rubberized, coated, etc.) inner layer, to provide a combination of comfort for the rider and protection for the underlying car seat. In accordance with certain embodiments, the fabric cover 104 can comprise a stretchable material (including, for instance, any of a variety of commercially-available elastic woven fiber materials, such as, for example, the materials generally available under the Lycra™ brand name) to allow the fabric cover to conform more closely to the contours of the car seat/infant carrier to which it is secured. Other materials can be used as well, to accommodate ergonomic and/or aesthetic considerations. Some such exemplary materials include leather, wool-like materials, and the like. In certain aspects, therefore, covers in accordance with embodiments of the invention can be used to provide an easy way to change the aesthetic and/or ergonomic characteristics of a car seat.

**[0030]** In accordance with some embodiments, the car seat cover 100 can have a border portion 108 disposed about the outer periphery of the fabric cover 104. In certain embodiments, the border portion 108 can comprise an elastic material (e.g., any material capable of maintaining elastic properties under normal operating conditions). Thus, merely by way of example, the border portion 108 can comprise a relatively narrow rubber or rubberized band of material. In other embodiments, the elastic material can comprise an outer portion of the stretchable material described above, perhaps attached to an inner portion of relatively less-stretchable material. The elastic material can, in some cases, describe a perimeter that is generally smaller than the perimeter of the fabric cover 104. In operation, therefore, the elastic material can be stretched to be placed over an outer periphery of a seating surface of a child car seat (or infant carrier) and then released. When allowed to contract, the elastic material thus can function to secure the cover 100 to the car seat. Alternatively, the border portion 108 can comprise a portion of material (e.g., a tunnel and/or series of loops) that may include, for example, a drawstring that can be used to cinch the border portion around the outer periphery of a seating surface (similar in effect to that of the elastic material, discussed above), thereby securing the cover 104 to a car seat. In some cases, the border portion 108 can be reinforced with additional and/or more stress-resistant material. Additionally, the border portion 108 can include one or more attachment mechanisms, as described more fully below, for attaching the cover 100 to a car seat.



Likewise, the car seat may have corresponding attachment mechanism(s) for allowing such attachment.

[0031] Car seat covers in accordance with embodiments of the invention can have a variety of dimensions, according to the dimensions of the car seats they are to protect. In some  
5 embodiments, for instance, the fabric cover 104 can be generally elliptical, round or rectangular in shape. Optionally, the border portion 108 can function to further define the shape of the cover 100, for instance, by gathering certain portions of the perimeter of the fabric cover 104. In accordance with some embodiments, the fabric cover 104 can have an overall length (top-to-bottom, as it is placed on the car seat) of between about thirty and  
10 about fifty inches, and in particular of between about thirty-five and about forty-five inches. In other embodiments, the fabric cover 104 can have an overall length of between about sixteen and about forty-five inches, and in particular between about twenty-four and about forty inches.

[0032] The exemplary car seat cover illustrated in Fig. 1 can have one or more shoulder  
15 strap openings 112 and/or crotch strap openings 116. As described in more detail below, the car seat's straps can extend through the openings 112, 116 when in use, allowing the straps to secure a child in the car seat while the cover 100 is in place. In accordance with certain embodiments, one or more of the openings 112, 116 can be bordered by a border portion (similar in form and/or function to the border portion 108 bordering the exterior of the cover  
20 100) and/or can be reinforced with tear resistant material, an extra layer of material, extra stitching, and/or the like, in order to maintain the size of the openings 112, 116 and/or prevent accidental enlargement of the openings 112, 116 through tearing.

[0033] In some cases, the shoulder strap openings 112 can be elongate and can have a length of between about fifteen inches and about twenty-five inches, and in particular of  
25 between about sixteen inches and about nine inches. In other cases, for example, covers designed to fit on smaller car seats and/or infant carriers, the openings 112 can have a length of between about five inches and about ten inches, and in particular of between about six inches and about eight inches. The shoulder strap openings 112 can have a variety of widths; in some embodiments, the openings 112 can be a slit in the cover 100, so that the effective  
30 width of the opening is relatively narrow, although the opening can be widened as necessary as the cover 100 is placed under tensile stress (for instance, when secured to a car seat) or when manipulated as the straps are extended through the opening. In other cases, the

openings 112 can be wider, for instance between about one-quarter inch and two inches, and in particular between about one-half inch and one inch when the cover 100 is under no tension. In still other cases, such as those described in detail below, the opening 112 can be even wider, for instance to accommodate two shoulder straps extended through a single opening.

**[0034]** The crotch strap opening 116 can be any of a variety of shapes. In some embodiments, the crotch strap opening is elongate, to accommodate the width of a buckle attached to the crotch strap. In other embodiments, the crotch strap opening 116 can be substantially circular, substantially rectangular, substantially triangular, or another shape. In particular embodiments, the crotch strap opening can be between about two inches and about six inches wide, and in particular between about three inches and about five inches.

**[0035]** Figs. 2-4 illustrate a car seat 200 with a cover 100 in accordance with certain embodiments of the invention. The car seat 200 comprises a frame 204, which usually is fabricated from a relatively rigid, high-impact material such as ABS plastic, metal and/or the like. The frame generally comprises a “front” face on which the child sits and a “rear” face, which often is disposed against a vehicle seat. (The term “front” face refers to the portion of the car seat on which the child sits. In some cases, particularly with rear-facing car seats, the front face in fact may not be oriented toward the front of the vehicle.) In many cases, the front face of the frame 204 is molded or otherwise crafted to fit the general anatomical contours of a child in a seated position. Between the front face of the frame 204 and the occupant of the seat 200 is disposed one or more layers of padding 208. The padding 208 can comprise a relatively firm material, such as that commercially available from Dow Corporation under the trade name Styrofoam, and/or a relatively soft material, such as cotton/synthetic batting. In many cases, the padding 208 comprises a plurality of layers, each of which may be relatively firm or relatively soft, in order to enhance both comfort and safety.

**[0036]** In accordance with embodiments of the invention, cars seats can include one or more safety belts, which can be used to secure a child in a car seat. In the illustrated embodiment, for example, the car seat 200 includes two shoulder straps 212, which can be attached to the frame 204 with a plurality of anchor devices 216. The anchor devices 216 can comprise any mechanism capable of attaching the shoulder straps 212 to the frame 208. Merely by way of example, an anchor device 216-1 can comprise a flat washer affixed to a

loop at one end of the strap 212-1, and the frame 204 can define a slot through which the washer may be inserted from the front. When the strap 216-1 is extended from the frame 208, the washer is pulled flat against the rear of the frame, securing the strap 212-1 to the frame. Alternatively, an anchor device 216 can comprise a fastener system, such as a bolt and nut, for attaching the strap 212 to the frame; other secure attachment fixtures can be used as well. In some cases, one or more of the anchors 216 can be designed to allow the straps 212 to pass through the anchors 216, and optionally, to lock the straps 212 in place, allowing for the tension of the shoulder straps 212 to be adjusted, providing for a customizable fit for a child placed in the seat 200. As well, some of the anchors 216 (in particular embodiments, the upper anchors 216-3, 216-4) can be positionally adjusted, to accommodate children of different heights.

[0037] In accordance with various embodiments, both ends of each of the shoulder straps 212 are attached to the frame with anchors 216, forming a pair of loops through which a child's arms may be extended, such that the straps 212 secure the child's shoulders to the car seat. Each strap 212 can comprise a connector 220. The car seat 200 further comprises one or more crotch straps 224, which can be attached to the frame with an anchor device 228, which may be similar in form and/or function to the anchor devices 216 discussed above. The crotch strap 224 can further comprise a buckle 232, which may be coupled with the connectors 220, in order to secure a child in the car seat. When the buckle 232 is coupled with the connectors, the belts 216, 224 can define a "five point" (or, in embodiments with two crotch straps, a "six point") harness, recognized by those skilled in the art as providing a relatively safe child restraint system.

[0038] The padding 208 can define one or more openings 236 through which the shoulder straps 212 can be threaded. In accordance with certain embodiments, the openings 236 can be arranged to accommodate the positional adjustment of the anchors 216. The padding 208 can further define a crotch strap opening 240, through which the crotch strap 224 can be threaded.

[0039] In accordance with embodiments of the invention, the cover 100 can be placed over the front face of the frame 204 and padding 208, in the manner indicated above. In particular embodiments, when the cover 100 is in place on the seat 200, the openings 112 in the cover 100 are disposed so that the shoulder straps 212 may be extended through the cover 100 while all of the anchors 216 remain attached to the frame 204. In other words, the shoulder

straps 212 do not need to be threaded through the openings 212; the loop formed by the strap 212-1 when attached to the frame 204 can itself be extended through the opening 112-1, and the loop formed by the strap 212-2 can be extended through the other opening 112-2. In this way, the cover 100 easily can be secured to the frame 204 and/or removed from the frame 204, without having to detach any of the anchors 216 from the frame 204. As well, the crotch strap 224 can be extended through the crotch strap opening 116 while the anchor 228 remains attached to the frame 204. Fig. 5 illustrates in detail the straps 212 and 224 extending through the openings 112, 116 in the cover 100.

[0040] In accordance with embodiments of the invention, therefore, the cover 100 quickly and easily may be removed from the frame 204 for washing and then resecured to the frame 204, allowing for more convenient (and therefore more frequent) cleaning of the cover. In other embodiments, the cover 100 can comprise a disposable material, as described above; thus, the cover 100 can be removed quickly and discarded, and a new cover can be secured to the frame 204, providing an additional, hygienic way to protect the car seat 200 from soiling. In accordance with some embodiments, a washable cover can be secured to the frame 204, and an additional, disposable cover can be secured over the washable cover, providing additional convenience and protection.

[0041] Other embodiments of the invention can feature different configurations of strap openings. Merely by way of example, car seat covers according to some embodiments can feature one or more flaps that cover at least part of a shoulder strap opening. Thus, the flaps can cover a substantial portion of the opening, effectively defining a plurality of openings for the strap to pass through and thereby reducing the overall area of the opening and reducing the chances that the portion of the car seat otherwise exposed by the opening might be soiled. In addition, the flaps can provide structural integrity for the cover, protecting the opening(s) from excessive lateral strain, which possibly could cause tearing of the openings. In some cases, the flap can comprise a material similar to the material from which the cover is constructed.

[0042] Merely by way of example, Fig. 6 illustrates a detail view of a car seat cover 600 in accordance with certain embodiments of the invention. The car seat cover features a pair of shoulder strap openings 112 and a crotch strap opening 116, similar to the cover 100 described above. The cover 600 also features a flap 604, which can be used to cover at least a portion of one of the openings 112. In some embodiments, the flap 604 can be substantially

rectangular in shape. In other embodiments, the flap 604 can be elliptical, round, triangular, or other shapes.

[0043] As illustrated in Fig.6, the flap can be configured so that the straps 112 extend through portions of the openings 112 that are not covered by the flap 604, when the flap 604 is in place. In the illustrated embodiment, one portion of the flap 604 is fixedly attached to the cover 112 via a fixed attachment mechanism 608 (such as stitching, heat welding or the like) and another portion of the flap 604 is removably attached to the cover via a plurality of removable attachment mechanisms. Thus, in certain embodiments, the cover 600 can comprise one component 612 of a removable attachment mechanism, and the flap 604 can comprise a complementary component 616 of the removable attachment mechanism. Merely by way of example, the removable attachment mechanisms can comprise fasteners, such as the hook-and-loop fasteners commercially available under the trade name Velcro™. Of course, other fasteners could be used as well, including buckles, snaps, buttons, zippers, adhesives, ties, hooks, and the like. In other embodiments, both portions of the flap 604 can be removably attached to the cover 600, allowing the flap 604 to be removed in its entirety from the cover 600.

[0044] In operation, once the shoulder straps 212 have been extended through the openings 112, as described above, the flap 604 can be closed, allowing the complementary components 612, 616 of the removable attachment mechanism to engage one another, removably attaching the flap 604 to the cover 600. Thus, while the straps 212 remain extended through the openings 112, a substantial portion of each of the openings 212 can be covered. To remove the cover 600, one can simply detach a portion of the flap 604 from the cover 600, retract the straps 212, 224 through the openings 112, 116, respectively, and remove the cover 600 from the frame of the car seat (not shown in Fig. 6), as described above.

[0045] In some embodiments, the flap 604 can have a width (running perpendicular to the length of the openings 212) of between about two inches and about five inches, and in particular between about three inches and about four inches. In other embodiments, the flap 604 can have a width between about five inches and about eighteen inches, and in particular, between about six inches and about ten inches. The flap can have a length of between about two inches and about twenty-four inches, and in particular between about three inches and about eight inches. In some cases, the dimensions of the flap 604 can depend upon the dimensions of the shoulder strap opening(s) 212 that the flap 604 covers.

[0046] Other embodiments feature different configurations of openings and/or flaps. Merely by way of example, Fig. 7 illustrates a cover 700 that includes a single opening 704, through which both shoulder straps (not shown in Fig. 7) may be extended. The length of the opening 704 can be similar to the lengths of the openings described above, but the width can be wider than those described above. Merely by way of example, in some embodiments, the width of the opening 700 can be from about four inches to about eighteen inches, and in particular, from about six inches to about twelve inches. Because the opening 704 accommodating both shoulder straps often will be wider than an opening for a single strap, the embodiments illustrated by Fig. 7 often feature a flap 708, which can be similar in configuration and/or function to the flap 604 described with respect to Fig. 6 above. Thus, a portion of the flap 704 can be fixedly and/or removably attached to the cover 700, and another portion of the flap 704 can be removably attached to the cover 700, for example, with one or more attachment mechanisms, which can have multiple, engaging components 716, 720, similar to the components 612, 616 described above.

[0047] Certain embodiments of the invention specifically comprise infant carriers and covers for such carriers. An exemplary embodiment is illustrated in Figs. 8 and 9, which illustrate an infant carrier 800. Similar to the car seats described above, the infant carrier 800 can comprise a frame 804, and padding 808 disposed on the front face of the frame 804. The carrier 800 can further comprise a pair of shoulder straps 812 attached to the frame by anchors 816 and comprising connectors 820, similar to their counterparts discussed above. Likewise the carrier 800 can have one or more crotch straps 824 attached by anchors 824 to the frame 804. The crotch strap(s) 824 can include a buckle 832, which can accept the connectors 820, as discussed above. The carrier 800 can further comprise a handle 836 to facilitate carrying of the carrier 800.

[0048] The carrier 800 can further include a cover 840. The cover 840 can comprise a fabric cover 844 and border portion 848, similar to the components described in detail above. The cover 840 can define one or more shoulder strap openings 852 through which the shoulder straps 812 can be extended, and a crotch strap opening 856, through which the crotch strap can be extended. The openings 852, 856 can be similar to those described above. Optionally, the cover 840 can be contoured to accommodate the handle 836 and/or can include one or more straps 860 to secure the cover 840 around the handle 836. One portion of the strap 860 can be fixedly and/or removably attached to the cover 840, and another

portion of the strap can be removably attached to the cover 840, for instance with any of the attachment mechanisms discussed above.

[0049] Other embodiments of the invention provide car seats and/or infant carriers with covers having support structures configured to support the head of a child riding in the car seat. For instance, Fig. 10 illustrates a car seat with a cover 100 including a support pillow 1000 for supporting a child's head. The support pillow 1000 can be fixedly attached to the cover and/or integrated with the cover. Merely by way of example, the support pillow 1000 can comprise an additional portion of material perimeter stitched onto the cover 100, with stuffing material disposed between the additional portion and the cover 100.

[0050] In other embodiments, the support pillow 1000 can be a separate pillow, for instance one of the pillows described in commonly-assigned U.S. Patent No. 6,321,403 entitled "Pressure Relief Pillow and Methods," and issued Nov. 27, 2001 to Matthews, the entire disclosure of which is incorporated herein by reference for all purposes. The support pillow can be fixedly attached to the cover 1000, for instance, by stitching, welding, etc. Optionally, the support pillow can be removably attached to the cover, for example, using any of the removable attachment mechanisms described above, to allow for repositioning of the support pillow to accommodate different sizes of children and/or to allow for easy removal for cleaning, etc.

[0051] Another set of embodiments provides car seat covers with attached canopies. Fig. 11 illustrates one such exemplary embodiment. The illustrated embodiment comprises a car seat 1100, which can be similar in configuration and/or features to the exemplary car seats and/or infant carriers discussed above. In particular embodiments, the car seat 1100 can include a cover 1104, which also can be similar to those discussed above. In particular, the cover 1104 may be (but need not be) designed to be easily removable from the car seat 1100. The cover 1104 may further comprise a canopy 1108, which can be used to shield a child in the seat from light, insects, adverse weather, public exposure, etc.

[0052] In accordance with some embodiments, the canopy 1108 may comprise a canopy body 1112, one or more border portions 1116, and one or more structural support members 1120. In some cases, the canopy body 1112 can comprise materials similar to those from which the cover 1104 is constructed. In other cases, different materials may be used, depending on the implementation. Merely by way of example, the body 1112 may comprise a mesh material, for instance to allow light and fresh air to reach the child, while protecting

the child from insects, etc. Alternatively, the body 1112 may comprise a relatively clear plastic material, which can allow light to reach the child while providing protection from inclement weather. In still other embodiments, the body 1112 may comprise a plurality of panels, which may be attached to one another via any of the attachment methods discussed herein, and each of the panels may comprise similar and/or different materials. Merely by way of example, Fig. 11 illustrates a fabric canopy body 1112 comprising a panel 1124, which may be clear plastic, so that, for instance, a parent may quickly and easily view a child underneath the canopy 1108. In some embodiments, the body 1112 is sized to extend over only a portion of the seat 1100. In other embodiments, the body 1112 can be sized to extend over the entire front portion of the seat 1104, effectively enclosing the child between the seat 1100 and the cover 1108. In some such embodiments, the cover 1108 can be retracted if desired, so that it covers only part of the front portion of the seat 1100.

**[0053]** The border portion(s) 1116 may be disposed about the outer periphery of the fabric cover 104, similar to the border portion 108 discussed above. The border portion(s) 1116 likewise may comprise an elastic material, which can define the shape of the canopy 1108 and/or a reinforcing material, and the border portion(s) 1116 may include a drawstring, as discussed above. In particular embodiments, a first border portion 1116a may be elasticized and configured fit around a top portion (*i.e.*, the portion toward which the child's head would rest) of the car seat 1100, thereby securing the canopy 1108 to the seat 1100. Alternatively and/or in addition, the canopy 1108 and/or car seat 1100 may feature a removable attachment mechanism, which can include without limitation those mentioned above, such as Velcro, snaps, buckles and/or the like, to secure the canopy 1108 and/or the border portion 1116a to the car seat 1100.

**[0054]** Optionally, a second border portion 1116b (which may but need not comprise a material similar to the first border portion 1116a) may extend around the periphery of the body 1112 away from the top portion of the car seat 1100. (In embodiments in which the canopy 1108 is designed to cover the entire front portion of the seat 1100, the second border portion 1116b may be similar to the first border portion 1116 and/or the canopy 1108 can feature an attachment mechanism for securing the canopy 1108 to the bottom of the car seat 1100.) In some cases, the first and second border portions 1116a, 1116b, respectively, may be embodied in a single border portion, which can extend around the entire periphery of the body 1112.



[0055] The support members 1120, which can, in some embodiments, extend in roughly semi-circular fashion from each side of the seat 1100 to provide structural support for the body 1112. The support members can comprise any suitably rigid material, including merely by way of example, plastic, aluminum or some other metal, fiberglass, and/or the like. The support members 1120 may, depending on the embodiment, be sown into the body 1108, be attached to the body 1108 by attachment mechanisms, etc.. In particular embodiments, the support members 1120 may be threaded through loops and/or tunnels incorporated in and/or affixed to the cover 1108.

[0056] In certain embodiments, the support members 1120 can be relatively thin rods that are flexed (perhaps by tension from the body 1112) into a desired shape for the canopy 1108. In some cases, the support members 1120 can be attached to the sides of the seat 1100. In other cases, the support members may be movable, such that they may be drawn relatively together (perhaps near the top and/or bottom portion of the seat 1100), to allow the canopy 1108 to be retracted (*e.g.*, to allow easy access to a child in the seat 1100). Merely by way of example, the support members 1120 may be attached to the car seat 1100 in such a way as to allow the support members 1120 to rotate about an axis running from one side of the seat 100 to the other side. In certain embodiments, the material comprising the body 112 may have sufficient rigidity that the support members are unnecessary.

[0057] Optionally, the canopy 1108 may comprise one or more coupling mechanisms 1132 for attaching toys and/or other objects. In some embodiments, the coupling mechanisms 1132b may be attached to (and/or integrated with) the canopy body 1108, a border portion 1116b and/or a support member 1120c. In some cases, the coupling mechanisms may be attached using any of the attachment mechanisms discussed herein. One or more objects (*e.g.*, toys, pacifiers, etc.) may be suspended from and/or attached to the canopy via the coupling mechanisms, which can comprise, *inter alia*, fabric straps, strings, chains, snaps, buckles, Velcro fastener materials and the like. The length of the coupling mechanism(s) can be adjustable to suspend the object(s) at a desirable height over the seat 1000 (and/or a child seated therein), and/or the coupling mechanisms may be elastic to permit objects to be grasped and/or pulled down to the child.

[0058] In particular embodiments, the coupling mechanisms 1132 may be attached to the canopy 1108 via a bar and/or directly. For example Fig. 11 illustrates an embodiment having a plurality of coupling mechanisms 1132. In accordance with some embodiments, one or

more coupling mechanism(s) 1132a may be attached to (and/or incorporated with) a bar 1128, which can be used to suspend toys. The bar 1128 can be attached to the body 1112, a border portion 1116 and/or a structural member 1120 using any attachment mechanism discussed herein. Merely by way of example, commonly-owned U.S. Patent Application No. 09/802,097, entitled "Support Pillow Kit with Toy Bar" and filed March 8, 2001 by Matthews-Brown, the entire disclosure of which is incorporated herein by reference for all purposes, describes in detail bars that may be used in accordance with embodiments of the invention.

[0059] Merely by way of example, the bar 1128 may be attached to one or more points relatively near an apex of the canopy 1112 (which may be formed by a structural member 1120c and/or a border portion 1116b), so that the bar 1128 hangs from the canopy 1108. In some embodiments, the toy bar may be attached to the canopy 1108 at a plurality of points relatively closer to the seat 1100, so that the toy bar spans a substantial portion of the width of the canopy 1108. One or more objects (*e.g.*, toys, pacifiers, etc.) may be suspended from and/or attached to the toy bar via coupling mechanism(s) 1132, which can comprise, *inter alia*, fabric straps, strings, chains, snaps, buckles, Velcro fastener materials and the like. The length of the coupling mechanism(s) can be adjustable to suspend the object(s) at a desirable height over the seat 1000 (and/or a child seated therein), and/or the coupling mechanisms may be elastic to permit objects to be grasped and/or pulled down to the child.

[0060] In some embodiments, a least a portion of the canopy 1108 may be fixedly and/or removably attached to the cover 1104. Merely by way of example, the border portion 1116a can comprise an attachment mechanism for attaching the canopy 1108 to the cover 1104. Alternatively, the border portion 1116a may be stitched and/or incorporated in to the cover, such that the cover 1104 and the canopy 1108 effectively share a border portion, which may be the border portion 108 of the cover 104, as discussed above. Thus, depending on the embodiment, the canopy 1108 may be designed to be washed with the cover. In such embodiments, the structural members 1120, and/or toy bar 1124 may be removed before washing. Alternatively, the canopy 1108 may be designed to be removed from the cover 1104 before the cover 1104 is washed.

[0061] In this way, embodiments of the invention provide novel car seats, car seat covers and methods for their use. The description above identifies certain exemplary embodiments for implementing the invention, but those skilled in the art will recognize that many

modifications and variations are possible within the scope of the invention. The invention, therefore, is defined only by the claims set forth below.